

A NEW SPECIES OF STACHYTARPHETA FROM BRAZIL

Harold N. Moldenke

STACHYTARPHETA CANDIDA Moldenke, sp. nov.

Herba prostrata parva; caulis dense hirsutis; foliis decussato-oppositis sessilibus oblanceolatis rigidiusculis utrinque sparsissime albo-setosis, ad apicem acutis, basin versus cuneatis, margine serrato; inflorescentiis spicatis terminalibus erectis solitariis dense multifloris 9--10 cm. longis 2.5--3 cm. latis ubique dense hirsutis.

Small prostrate herb; stems apparently unbranched, 15--20 cm. long, flat on the ground except for the erect tips, densely hirsute throughout; leaves decussate-opposite, erect, rather rigid, uniformly bright-green on both surfaces, sessile, 3--5.5 cm. long, 1--1.7 cm. wide, acute at the apex, serrate along the margins from about the middle to the apex, cuneate to the base, very sparsely white-setose on both surfaces; venation about equally prominent on both surfaces in an intricate network; inflorescence erect, terminal, solitary, 9--10 cm. long, densely many-flowered, 2.5--3 cm. wide, densely hirsute throughout; peduncles short, mostly about 1.5 cm. long, densely hirsute; flowers widely divergent, imbricate; rachis similar to the peduncle and stem in all respects; bractlets narrow-lanceolate, 1 cm. long, equaling the calyx, densely hirsute, long-attenuate at the apex; calyx tubular, 1 cm. long, densely hirsute outside with white spreading hairs like those on the peduncles and stems, the apex 5-apiculate; corolla white, the tube about equaling the calyx, the limb about 1 cm. wide; pistil 1.5 cm. long, persisting and conspicuous beyond the calyx after the corolla is shed.

The type of this very distinctive species was collected by H. S. Irwin, J. W. Grear, Jr., R. Souza, and R. Reid dos Santos (no. 12393) on a wet campo, at an elevation of 1000 meters, Chapada dos Veadeiros, about 15 km. west of Veadeiros, Goiás, Brazil, on February 9, 1966, and is deposited in the United States National Herbarium at Washington.

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ADDITIONAL NOTES ON THE GENUS VITEX. VII

Harold N. Moldenke

VITEX Tourn.

Additional & emended synonymy: Wilckeia Scop., *Introd. Hist. Nat.* 170. 1777. Macrostegia Nees in A.DC., *Prodr.* 11: 218. 1847 [not Macrostegia Turcz., 1852]. Viiex L. ex Hosokawa, *Journ. Soc. Trop. Agr. Taiwan* 6: 206, sphalm. 1934. Wilkea P. & K. apud

Airy Shaw in Willis, Dict. Flow. Pl., ed. 7, 1194, in syn. 1966.
 Additional & emended bibliography: Adans., Fam. Pl. 2: 12, 196, & 200. 1763; Scop., Introd. Hist. Nat. 170 & 171. 1777; J. F. Gmel. in L., Syst. Nat., ed. 13, pr. 1, 2: 962—963 (1789) and pr. 2, 2: 962—963. 1796; H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 199—200 (1817) and ed. quarto, 2: 245—246. 1818; Pers., Sp. Pl. 3: 359—361. 1819; Steud., Nom. Bot., ed. 1, 888. 1821; Bischoff, Handb. Bot. Term. 1: Erk. Taf. 32, pl. 40, fig. 1691. 1830; Roxb., Fl. Ind., ed. 2 [Carey], 69—75. 1832; Hook. & Arn., Bot. Beech. Voy. 206, pl. 47 & 48 (1836) and 305. 1838; D. Dietr., Syn. Pl. 3: 371. 1843; Bischoff, Organ. Syst. Art. Regist. 23. 1849; Wittst., Etymol.-bot. Handwörterb. 325. 1852; Schnitzl., Icon. Fam. Nat. Reg. Veg. 137. 1856; Mason, Burmah & People, ed. 2, 413, 479, 526, & 792. 1860; Beddome, Forester's Man. Bot. S. Ind. 172. 1873; Gamble, Man. Ind. Timb., ed. 1, 294 & 296—298. 1881; Watt, Econ. Prod. India 5: 294—295 (1883), 6: 191 (1883), and 7: 254 & 255. 1883; W. Robinson, Garden 27: 130. 1885; Vidal, Phan. Cuming. Philip. 134—135. 1885; Watt, Dict. Econ. Prod. India 6 (4): 248—251. 1893; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 59, 77, 296, 297, 304, 447, 529, 582, 619, & 844 (1893), 2: 83 & 308 (1894), and 2: 642, 667, 1036, 1121, & 1213—1214. 1895; Barnhart, Bull. Torrey Bot. Club 29: 590. 1902; Gamble, Man. Ind. Timb., ed. 2, 539—542. 1902; Prain, Beng. Pl., ed. 1, 2: 823 & 831—833. 1903; Millsp. in Fedde, Repert. Spec. Nov. 7: 285. 1909; A. Chev., Sudania 1: 4, 11, 43, & 71. 1911; Duthie, Fl. Upper Gang. Plain 2: 215, 223—224, & 266. 1911; R. N. Parker, For. Fl. Punjab 394. 1918; Backer, Trop. Natuur 8: 7, fig. 313. 1919; A. Chev., Cat. Pl. Jard. Bot. Saigon 36. 1919; I. Bailey, Ecology 1: 174—189. 1920; Vaughan, Indian Forest. 47: 286—288, pl. 9 & 10. 1921; Nakai, Trees & Shrubs Indig. Jap., ed. 1, 1: 350, fig. 190. 1922; Chopra, Knowles, & Gupta, Indian Med. Gaz. 58: 133. 1924; Gamble, Fl. Presid. Madras 2 (6): 1086 & 1101—1103. 1924; C. J. F. Skottsberg, Medd. Göteborg. Bot. Trädg. 2 [Haw. Vasc. Pl. 1]: 259. 1925; C. Coster, Ann. Jard. Bot. Buitenz. 38: pl. 6, fig. 2. 1928; Watt & Breyer-Brandwijk, Med. & Poison. Pl. S. Afr., ed. 1, 154 & 241. 1932; Bonstedt, Pareys Blumengärtn., ed. 1, 272 & 278. 1932; C. M. King, Proc. Iowa Acad. Sci. 39: 66 & 74, fig. 11. 1932; Hochr., Candollea 5: 191—192. 1934; Hosokawa, Journ. Soc. Trop. Agr. Taiwan 6: 206. 1934; Anon., Ind. Sem. Ofr. Canje Jard. Bot. Montev. 8. 1935; Terazaki, [Illustr. Fl. Jap.] fig. 2499. 1938; Cranwell, Rec. Auckl. Inst. & Mus. 2: 297. 1942; Uphof, Bot. Rev. 8: 569—571. 1942; Rosengurt, Estud. Prad. Nat. Urug. 5: 394. 1946; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 59, 77, 296, 297, 304, 447, 529, 582, 619, & 844 (1946) and 2: 83, 642, 667, 1036, 1121, & 1213—1214. 1946; Sel-ling, Bishop Mus. Spec. Publ. 38: [67], 274, 275, 394, 410, & 411. 1947; Li & Keng, Taiwan 1 (2-4): 127. 1950; Kuck & Tongg, Mod. Trop. Gard. 42, 77, & 236. 1955; H. St. John, Nomencl. Pl. 74. 1958; Cave, Ind. Pl. Chromosome Numb. 1: 46 & 54. 1958; Kitamura & Okamoto, Col. Illustr. Trees & Shrubs Japan 221, pl. 65. 1960; Encke, Pareys Blumengärtn., ed. 2, 2: 446. 1960; Potztal in Encke, Pareys Blumengärtn., ed. 2, 2: 439. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 59, 77, 296, 297, 304, 447, 529,

- 582, 619, & 844 (1960) and 2: 83, 642, 667, 1036, 1121, & 1213—1214. 1960; Cave, Ind. Pl. Chromosome Numb. 2: 137. 1961; Deb, Bull. Bot. Surv. India 3: 315. 1961; D. Price, Contrib. N. S. Wales Nat. Herb. 3: 194. 1961; Allan, Fl. N. Zeal. 1: 959—960. 1961; M. R. Henderson, Common Malay. Wildfls. 39. 1961; H. F. Mac Millan, Trop. Plant. & Gard., ed. 5, pr. 3, 197, 198, 214, 217, 366, & 529. 1962; R. K. Gupta, Journ. Indian Bot. Soc. 41: 10. 1962; Thothathr., Bull. Bot. Surv. India 4: 291. 1962; Nobuhara, Okada, & Fujihira, Jap. Journ. Ecol. 12: 101—103, 105, & 107. 1962; Veillon, Revist. Forest. Venez. 5: 59, 61, & 66. 1962 Watt & Breyer-Brandwijk, Med. & Poison. Pl. S. Afr., ed. 2, 1055 & 1454. 1962; Maheshwari, Fl. Delhi 281—282. 1963; Prain, Bengal Pl., ed. 2, 2: 621—622 & 1012. 1963; Sharma & Mukhopadhyay, Journ. Genet. 58: 359, 365, 366, 375, 376, 379, 383, & 539, pl. 11, fig. 30 & 31. 1963; Chuang, Chao, Hu, & Kwan, Taiwania 1 (8): 54, 58, & 63, pl. 3, fig. 40. 1963; Jain, Bull. Bot. Surv. India 5: 225 & 356. 1963; Rao, Aggarwal, & Mukherjee, Bull. Bot. Surv. India 5: 146, 309, 311, 315, & 321. 1963; J. Joseph, Bull. Bot. Surv. India 5: 294. 1963; Janardhanan, Bull. Bot. Surv. India 5: 371. 1963; Patil, Bull. Bot. Surv. India 5: 20. 1963; Deb, Bull. Bot. Surv. India 5: 54. 1963; Santapau & Wagh, Bull. Bot. Surv. India 5: 109. 1963; Arora, Journ. Indian Bot. Soc. 42: 41, 42, 50, & 56. 1963; Rios de Moura Baptista, Anais XV Congr. Soc. Bot. Bras. 200. 1964; Duffy, Journ. Appl. Ecol. 1: 227, 228, 231, 234, 242, 243, & 248. 1964; A. Banerjee in Lahiri, West Beng. Forests 56. 1964; R. C. Ghosh in Lahiri, West Beng. Forests 197. 1964; Straatmans, Micronesica 1: 115. 1964; S. V. Ramaswamy, Bull. Bot. Surv. India 6: 10 & 17. 1964; Puri, Jain, Mukerjee, Sarup, & Kotwal, Rec. Bot. Surv. India 19: 107. 1964; Rao & Sastry, Bull. Bot. Surv. India 6: 160, 164, & 281. 1964; Cave, Ind. Pl. Chromosome Numb. 2: 331 (1964) and 2: 438. 1965; Hepper, Bull. Inst. Fond. Afr. Noire 27: 419, 421, & 496. 1965; Schnell, Adansonia 5: 348. 1965; Lamprecht, Revist. Forest. Venez. 7: 107. 1965; Konrad, Revist. Forest. Venez. 8: 70. 1965; Sen & Naskar, Bull. Bot. Surv. India 7: 60. 1965; M. S. Mani, Bull. Bot. Surv. India 7: 114. 1965; Galil, Eizikowitch, & Prosbul, Hort. Bot. Univ. Tel-aviv. Ind. Sem. 1965: 5. 1965; Chopra, Badhwar, & Ghosh, Poison. Pl. India 2: 694 & 695. 1965; Banerji, Rec. Bot. Surv. India 19: 75. 1965; Pitschman, Reisigl, & Schiechl, Fl. Sudalp. 189. 1965; Maheshwari & Singh, Dict. Econ. Pl. India 166. 1965; D. R. Harris, Univ. Calif. Publ. Geogr. 18: [Pl. Anim. & Man Outer Leeward Isls.] 151. 1965; Bose, Handb. Shrubs 96, 97, 119, & 162. 1965; F. A. Barkley, List Ord. Fam. Anthoph. 76, 137, 217, & 219. 1965; Douk, Trav. Lab. Mat. Méd. Pharm. Gal. Paris 50: 1—264. 1965; Galil, Eizikowitch, Prosbul, & Tankus, Hort. Bot. Univ. Tel-aviv. Ind. Sem. 1966: 5. 1966; Polunin & Huxley, Fls. Medit. 154—155. 1966; Chavan & Oza, Mahar. Savaj. Univ. Baroda Bot. Mem. 1: 185 & 187. 1966; B. C. Stone, Micronesica 2: 132. 1966; C. A. Sm., Common Names S. Afr. Pl. 243, 374, 379, 438, 439, 498, & 601. 1966; R. H. Compton, Journ. S. Afr. Bot. Suppl. 6: 156, 177, & 178. 1966; Seikel, Chow, & Feldman, Phytochem. 5: 439—455. 1966; S. V. Ramaswami, Study Flow. Pl. Bangalore [thesis] xcix, 1016, 1027—1031, & 1467. 1966;

J. A. Steyererm., Act. Bot. Venez. 1: 254. 1966; Steyererm. & Agostini, Act. Bot. Venez. 1 (2): 13, 14, & 17. 1966; Anon., Ind. Bibliogr. Bot. Trop. 3 (2): 15. 1966; Panigrahi, Bull. Bot. Surv. India 8: 3, 4, & 11. 1966; Malick, Bull. Bot. Surv. India 8: 55. 1966; Panigrahi & Joseph, Bull. Bot. Surv. India 8: 151. 1966; Airy Shaw in Willis, Dict. Flow. Pl., ed. 7, 32, 205, 245, 408, 654, 684, 687, 770, 932, 944, 1148, 1173, 1176, 1184, 1188, 1193, & 1194. 1966; Matthew, Bull. Bot. Surv. India 8: 164. 1966; Sebastine & Ramamurthy, Bull. Bot. Surv. India 8: 180. 1966; Balapure, Bull. Bot. Surv. India 8: 190 & 194. 1966; Jain & De, Bull. Bot. Surv. India 8: 247. 1966; Naithani, Bull. Bot. Surv. India 8: 260. 1966; Rao & Rabha, Bull. Bot. Surv. India 8: 301. 1966; J. L. Ellis, Bull. Bot. Surv. India 8: 329 & 337. 1966; Menninger, Bull. Fairchild Trop. Gard. 22 (3): 10. 1967; L. V. Barton, Bibl. Seeds 814. 1967; Anon., Biol. Abstr. 48 (22): S.190. 1967; Nobuhara, Jap. Journ. Bot. 19: 326--328, 330, 332--334, 336--338, 341--345, & 348. 1967; Moldenke, Phytologia 15: 222--232, 240--268, & 304--325. 1967; Moldenke, Résumé Suppl. 15: 2, 4--10, 14--16, 20, 21, & 23--25. 1967; Anon., Quart. Journ. Crude Drug Res. 7: 1066. 1967; Friedrich-Holzharmer in Merxm., Prodr. Fl. Südw. Afr. 122: 1 & 9--10. 1967; J. Jiménez, Archiv. Bot. & Biogeogr. Ital. 43: 16. 1967; Anon., Biol. Abstr. 48 (20): S. 181. 1967; Twisselmann, Wasmann Journ. Biol. 25: 125 & 327. 1967; Guillaum., Mém. Mus. Hist. Nat. Paris B.15: 315. 1967; Fulling, Ind. Bot. Record. Bot. Review 569. 1967; Anon., Biol. Abstr. 48 (23): S. 186. 1967; Litvinenko & Kovalev, Khim. Prirod. Sedin (Tashkent) 3: 56--57. 1967; Moldenke, Biol. Abstr. 48: 10560. 1967; R. R. Stewart, Pakistan Journ. Forest. 17: 515. 1967; Rimpler & Schulz, Tetrahed. Lett. 22: 2033--2035. 1967; Moldenke, Biol. Abstr. 48: 10099. 1967; Rimpler & Schulz, Biol. Abstr. 48: 9253. 1967; J. S. Beard, Journ. Ecol. 55: 277. 1967; Dombrowski & Kuniyoshi, Araucariana 1: 14. 1967; D'Arcy, Rhodora 69: 439. 1967; Ivory, East Afr. Agr. Forest Journ. 32: 393--397. 1967; Seikel, Chow, & Feldman, Biol. Abstr. 48: 9450. 1967; Santa, Nat. Monsp. Bot. 18: 26, 76, & 123, fig. 129 & 130. 1967; Sauer, Plants & Man Seychelles 102. 1967; Soukup, Biota 6: 359. 1967; Santapau, Bull. Bot. Surv. India 8: 39. 1967; Camara & Ciferri, Quaderno 39: 455 & 456. 1967; N. H. A. Cole, Bull. Inst. Fond. Afr. Noire 29: 910 (1967) and 30: 107. 1968; Moldenke, Phytologia 15: 472. 1968; Ivory, Biol. Abstr. 49: 3307. 1968; Moldenke, Biol. Abstr. 49: 851 & 1325 (1968), 49 (2): S.72 & S.186 (1968), 49 (3): S.73 & S. 186 (1968), and 49 (7): S.181. 1968.

It should be noted that the H.B.K. reference dates given above have been authenticated by consultation of the work by Barnhart (1902). The Hooker & Arnott dates given in the same emended bibliography are often cited incorrectly as "1840" and "1841". Actually, pages 193 to 288 and plates 40 to 59 of this work were issued in 1836, while pages 289 to 384 and plates 60 to 79 were issued in 1838.

Encke (1960) describes this genus as follows: "Vitex L., Münchspfeffer (römischer Name für V. agnus-castus). Laubabwerfende, oft aromatische Sträucher und Bäume, mit gegenständigen 3--7

fach gefingerten, selten auf 1 Blättchen reduzierten Blättern. Blüten klein, weiss, blau oder gelblich, in oft rispenartigen Trugdolden. Kelch glockenförmig, oft 5zählig. Krone mit zylindrischen, meist kurzer, gerader, seltener gebogener, nach oben zu etwas erweiterter Röhre. Kronsaum ausgebreitet, schief, schwach zweilappig, 5spaltig. Staubblätter 4, davon 2 kürzer und 2 länger. Frucht eine kleine Steinfrucht, mit einem 4fächerigen Steinkern, umgeben von dem nicht abfallenden Kelch. — Etwa 220 Arten, verbreitet in allen tropischen und subtropischen Ländern."

Barkley (1965) includes Tripinna, Tripinnaria, and Varengevillea among the valid genera of Verbenaceae, but they are all invalid. Litvinenko & Kovalev (1967) tell us that vitexine is found naturally also in Glycyrrhiza glabra.

Scopoli (1777) gives Mailelou of Rheedee as a synonym of his genus Wilckea. The Ephielis of Schreber is a synonym of Ratonia in the Sapindaceae, while the Macrostegia of Turczaninow is actually Pimelea Banks in the Thymelaeaceae. Airy Shaw (1966) erroneously places Macrostegia Nees in the Acanthaceae. Also, he credits the name Ephialum to Wittstein, but that author in his Etymol.-bot. Handwörterb. 325 (1852) plainly credits the name to Solander; similarly Airy Shaw credits Wilckea to "P. & K.", but Post & Kuntze in their Lexicon 593 (1904) plainly credit the name to Scopoli.

Vidal (1885) cites Cuming 686, 1173, 1297, & 1698 as undetermined species of Vitex.

VITEX ACUMINATA R. Br.

Additional bibliography: Steud., Nom. Bot., ed. 1, 888. 1821; Moldenke, Phytologia 15: 224 & 244. 1967; Moldenke, Résumé Suppl. 15: 25. 1967; Moldenke, Biol. Abstr. 48: 10099 (1967) and 49: 1325. 1968.

VITEX AGELAEIFOLIA Mildbr.

Additional bibliography: Moldenke, Phytologia 15: 224—225. 1967; Moldenke, Résumé Suppl. 15: 24. 1967.

VITEX AGELAEIFOLIA var. RUFULA Moldenke

Additional bibliography: Moldenke, Phytologia 15: 225. 1967; Moldenke, Résumé Suppl. 15: 24. 1967.

VITEX AGNUS-CASTUS L.

Additional synonymy: Vitex agnuscastas Bose, Handb. Shrubs 122, sphalm. 1965. Vitex agnescasteus L., in herb. Vitex agnus casteus L., in herb.

Additional & emended bibliography: J. F. Gmel. in L., Syst. Nat., ed. 13, pr. 1, 2: 963 (1789) and pr. 2, 2: 963. 1796; Pers., Sp. Pl. 3: 360. 1819; Steud., Nom. Bot., ed. 1, 888. 1821; Bischoff, Handb. Bot. Term. 1: Erk. Taf. 32, pl. 40, fig. 1691. 1830; Bischoff, Organ. Syst. Art. Regist. 23. 1849; Schnitzl., Icon. Fam. Nat. Reg. Veg. 137. 1856; Gamble, Man. Ind. Timb., ed. 1, 296. 1881;

Watt, Econ. Prod. India 5: 294. 1883; Watt, Dict. Econ. Prod. India 6 (4): 250—251. 1893; Gamble, Man. Ind. Timb., ed. 2, 539 & 542. 1902; Bonstedt, Pareys Blumengärtn., ed. 1, 278 & 279. 1932; C. M. King, Proc. Iowa Acad. Sci. 39: 66 & 74, fig. 11. 1932; Anon., Ind. Sem. Ofr. Canje Jard. Bot. Montev. 8. 1935; Selling, Bishop Mus. Spec. Publ. 38: 274, 275, & 411. 1947; Encke, Pareys Blumengärtn., ed. 2, 446. 1960; Sharma & Mukhopadhyay, Journ. Genet. 58: 359, 366, 376, 379, 383, & 539, pl. 11, fig. 31. 1963; Maheshwari, Fl. Delhi 281—282. 1963; Cave, Ind. Pl. Chromosome Numb. 2: 331. 1964; Pitschman, Reisigl, & Schiechtl, Fl. Sudalp. 189. 1965; Bose, Handb. Shrubs 96, 119, & 122. 1965; Polunin & Huxley, Fls. Medit. 154—155. 1966; Galil, Eizikowitch, Prusbul, & Tankus, Hort. Bot. Univ. Tel-aviv. Ind. Sem. 1966: 5. 1966; Moldenke, Phytologia 15: 225—226, 267, 305, & 309. 1967; D'Arcy, Rhodora 69: 439. 1967; Moldenke, Résumé Suppl. 15: 2, 15, 16, & 24. 1967; Santa, Nat. Monsp. Bot. 18: 26, 76, & 123, fig. 129 & 130. 1967; Twisselmann, Wasmann Journ. Biol. 25: 125 & 327. 1967.

Additional illustrations: Bonstedt, Pareys Blumengärtn., ed. 1, 279. 1932; Bose, Handb. Shrubs opp. p. 73. 1965; Santa, Nat. Monsp. Bot. 18: 123, fig. 129 & 130. 1967.

D'Arcy (1967) tells us that this species is a common ornamental plant on Tortola and that it is there also "probably spontaneous".

Polunin & Huxley (1966) state that this species is found growing on the banks of streams and in damp places by the sea all around the Mediterranean Sea, flowering there from June to September. Its seeds from the days of Dioscorides have been celebrated for their ability to subdue "the inclination natural" between the sexes of man; hence the vernacular name of "chaste tree" for the species and genus. This property renders the plant especially useful for celibates, and this, in turn, has led to the common name of "monk's pepper". However, the fresh seeds have an aromatic pungency, and so have been considered by other "authorities" to have aphrodisiac properties! The species is still employed in some quarters as a medicinal plant in the treatment of eye diseases and stomach aches.

Maheshwari (1963) describes the plant as it is grown in Delhi, India, as follows: "Flower clusters dense, in a spike-like inflorescence; leaflets lanceolate.....A strongly aromatic shrub, woolly-tomentose throughout. Leaves digitate, long-petiolate, velvety. Leaflets 5—7, lanceolate, 4—10 x 0.65—1.3 cm., entire. Flowers pale purple or violet, in interrupted spikes in groups of several. Stamens exserted. Drupes small, globose, exceeding the calyx, 4-celled. Grown in shrubberies of parks and gardens. Flowers: June—Sept." He cites Maheshwari 220. The plant is described by Bose as having blue flowers, with the comment that blue and violet flowers are not common on perennial plants [in India] -- possible var. caerulea Rehd. is involved here.

Encke (1960) describes the plant thus: "Mönchspfeffer. Mittelmeergebiet, Westasien. September, Oktober. Bis 3 m hoher, ausgebreitet wachsender Strauch, mit graufilzigen Trieben. Blätter ge-

finger, 5- bis 7zählig. Blättchen 5--15 cm lang, 0,6--1,8 cm breit, meist ganzrandig, unterseits graufilzig. Blüten in 7--17 cm langen, rispigen Endähren, hellviolett, duftent. -- Wahrscheinlich schon lange vor dem 16. Jahrhundert in Kultur. E. I. IV/3a: 171; W. III: 165." Cave (1964) reports the diploid chromosome number as 32.

King (1932) describes the seedlings of V. agnus-castus as follows: "Seedling....2 inches tall, seed leaves and 3 pairs of succeeding leaves. Roots fibrous branching; secondary roots present. Hypocotyl pale. Cotyledons narrow, oval, rounded at apex, short petiolate. Leaves opposite. First pair obovate, crenate, petiolate, exstipulate, entire, pinnate net-veined. Second pair, obovate, obtuse, entire; petiole half the length of the leaf blade. Third pair similar to the first and second, with indications of division, and some serration on margin of leaf. Plant agreeably aromatic." Mattfeld found it growing at 650 m. altitude.

Jiménez (1967) reports that in the Dominican Republic this species is called "yerba Luisa" and "yerba de la suerte". Twisselmann (1967) records it from Kern County, California, and says "single robust spontaneous shrub grows in dry canal bottom in alkali sink in the Weedpatch region (T 7409), full bloom in July; volunteers can be expected freely when and if planted in Kern County gardens." Betts (1944) tells us that the species was growing in Thomas Jefferson's nursery on April 11, 1807.

The E. K. Balls 565, Kocher B.12, Regel s.n. [VII-VIII 1882], s.n. [1882], & s.n. [VII.1883], and Rodi 5272, distributed as V. agnus-castus, are all var. pseudo-negundo Hausskn., while the Herb. Post s.n. [Hamath, Aug. 1884] is probably V. negundo L. and Stefani s.n. [10 Mai 1903] is not verbenaceous.

Additional citations: SOUTH CAROLINA: Greenville Co.: Rodgers & Mullens 67086 (Mi). GREECE: Ballalas s.n. [Mount Athos, 1921] (W--1093257); Mattfeld 2035 (W--1430411), 2644 (W--1430469). ITALY: C. Bicknell s.n. [11 Julio 1892] (W--73899); Herb. Ball s. n. [Liguria, Jul. 1851] (W--682454); Vazreda s.n. [Gerona, 20 Aout 1876] (W--147604). CORSICA: Aellen 1856 (W--1627894). JUGOSLAVIA: Herzegovinia: Raap 240 (W--549184). UNION OF SOCIALIST SOVIET REPUBLICS: Turkenskaya: Regel s.n. [VII.1884] (W--597961). Province undetermined: Collector undetermined s.n. [2/VI/1912] (W--2090768). TURKEY: Fidaio s.n. [Environs de Smyrne, Aout 1904] (N). ISRAEL: Field & Lazar 233 (N). SYRIA: Herb. Post s.n. [Beirut River, June 3/71] (N), s.n. [Anitab, Aug. 9, 1882] (W--805059); Herb. Torrey s.n. [Beirut, July 1884] (T). IRAQ: Field & Lazar 735 (N), 818 (N), 953 (N); Lazar 337 (N). IRAN: Bunge 1 (W--1094135). CULTIVATED: Brazil: M. L. Vasconcelos 14 (W--2503779). District of Columbia: Vasey s.n. [Ag. grounds, 1876] (W--73897), s.n. [Cultivated, 1884] (W--73898). New York: H. N. Moldenke 24325 (Ac). Locality undetermined: A. Wood s.n. [Gardens, South] (Ms--30947).

VITEX AGNUS-CASTUS f. ALBA (West.) Rehd.

Additional bibliography: Moldenke, *Phytologia* 15: 225. 1967; Moldenke, *Résumé Suppl.* 15: 16 & 24. 1967.

VITEX AGNUS-CASTUS var. CAERULEA Rehd.

Additional bibliography: Moldenke, *Phytologia* 15: 225. 1967; Moldenke, *Résumé Suppl.* 15: 24. 1967.

VITEX AGNUS-CASTUS var. DIVERSIFOLIA (Carr.) Schelle

Additional bibliography: Moldenke, *Phytologia* 15: 225. 1967; Moldenke, *Résumé Suppl.* 15: 15, 16, 24, & 25. 1967.

VITEX AGNUS-CASTUS f. LATIFOLIA (Mill.) Rehd.

Additional bibliography: Steud., *Nom. Bot.*, ed. 1, 888. 1821; Moldenke, *Phytologia* 15: 225—226. 1967; Moldenke, *Résumé Suppl.* 15: 2, 16, & 24. 1967.

VITEX AGNUS-CASTUS var. PSEUDO-NEGUNDO Hausskn.

Emended synonymy: *Vitex negundo* var. *pseudo-negundo* Hausskn. apud Moldenke, *Phytologia* 15: 226, in syn. sphalm. 1967.

Additional & emended bibliography: Galil, Eizikowitch, & Prusbul, *Hort. Bot. Univ. Tel-aviv. Ind. Sem.* 1965: 5. 1965; Galil, Eizikowitch, Prusbul, & Tankus, *Hort. Bot. Univ. Tel-aviv. Ind. Sem.* 1966: 5. 1966; Guest, *Fl. Iraq* 1: 84. 1966; Moldenke, *Phytologia* 15: 226. 1967; Moldenke, *Résumé Suppl.* 15: 24 & 25. 1967.

Guest (1966) tells us that one finds this plant growing "among arborescent species in mountain riverain forests" in Iraq. Rechinger found it along rivulets in Iran, flowering in February. Kocher describes it as a "Flowering shrub with terminal spike of many blue flowerets, each about 1/4 inch across, Iris or pea-shaped. The largest lower lip of the floweret dark purple with yellow beard, 4 upper side lobes lavender. Stamens free at center with purple tips. Leaves palmate, olive green. Plant has a delicate graceful appearance, growing to a height of 4 ft." He found it growing 930 feet below sealevel. Balls found it as about sealevel and says "Fls. in shades of pale lilac or lavender-blue, each bush a separate colour. Spike 6—12" long. Lax shrubs to 15 ft. tall and spreading by underground runners. In sandy soil by sea shore, dark volcanic sand."

Material has been misidentified and distributed in herbaria as *V. agnus-castus* L.

Additional citations: UNION OF SOCIALIST SOVIET REPUBLICS: *Turkmanskaya: Regel s.n.* [VII-VIII 1882] (W—597962), *s.n.* [1882] (W—272465), *s.n.* [VII.1883] (W—272466). TURKEY: *E. K. Balls 565* (W—2318762). ISRAEL: *Amdursky 280* (W—1628615). SYRIA: *Kocher B.12* (W—2336802). IRAQ: *Rodi 5272* (W—2272683). IRAN: *Aellen & Esfandiari 3996* (W—2127950); *K. H. Rechinger 1308* (W—2061215); *Rechinger & Rechinger 5778* (W—2128126).

VITEX AGNUS-CASTUS f. VARIEGATA Moldenke

Additional bibliography: Moldenke, Phytologia 15: 87. 1967;
Moldenke, Résumé Suppl. 15: 24. 1967.

VITEX AJUGAEFLORA Dop

Additional bibliography: Moldenke, Phytologia 15: 226. 1967.
Additional citations: INDOCHINA: Cochinchina: Pierre s.n. [10/
1866] (W-1757901).

VITEX ALTISSIMA L.f.

Additional & emended synonymy: Vitex pubescens Heyne ex Wall., Numer. List [48], no. 1755, in syn. 1829 [not V. pubescens Vahl, 1794]. Vitex altissima L. ex Roxb., Fl. Ind., ed. 2 [Carey], 3: 71. 1832. Vitex trifolia Moon apud Trimen, Handb. Fl. Ceylon 3: 357. 1895 [not V. trifolia Graham, 1966, nor Hemsl., 1949, nor L., 1753, nor L.f., 1895, nor Sessé & Moc., 1940, nor Vahl, 1941, nor "sensu Matsumura & Hayata", 1963].

Additional & emended bibliography: J. F. Gmel. in L., Syst. Nat., ed. 13, pr. 1, 2: 962 (1789) and pr. 2, 2: 962. 1796; Pers., Sp. Pl. 3: 360. 1819; Steud., Nom. Bot., ed. 1, 888. 1821; Wall., Numer. List [48], no. 1755. 1829; Roxb., Fl. Ind., ed. 2 [Carey], 3: 71-72. 1832; Gamble, Man. Ind. Timb., ed. 1, 297 & 298. 1881; Watt, Econ. Prod. India 7: 255. 1883; Watt, Dict. Econ. Prod. India 6 (4): 247. 1893; Gamble, Man. Ind. Timb., ed. 2, 539 & 540. 1902; Gamble, Fl. Presid. Madras 2: 1101-1103. 1924; H. F. Mac Millan, Trop. Plant. & Gard., ed. 5, pr. 3, 197, 198, 214, 217, & 529. 1962; R. K. Gupta, Journ. Indian Bot. Soc. 41: 10. 1962; Arora, Journ. Indian Bot. Soc. 42: 41, 42, & 50. 1963; Rao & Sasstry, Bull. Bot. Surv. India 6: 160 & 164. 1964; Maheshwari & Singh, Dict. Econ. Pl. India 166. 1965; S. V. Ramaswami, Study Flow. Pl. Bangalore [thesis] xxix, 1028-1029, & 1467. 1966; Sebastine & Ramamurthy, Bull. Bot. Surv. India 8: 180. 1966; Naitani, Bull. Bot. Surv. India 8: 260. 1966; J. L. Ellis, Bull. Bot. Surv. India 8: 329 & 337. 1966; Moldenke, Phytologia 15: 226-227, 267, 307, 316, & 324. 1967; Moldenke, Résumé Suppl. 15: 10, 15, 24, & 25. 1967.

It should be noted here that the V. trifolia of Linnaeus is a valid species, that accredited to Graham is a synonym of V. negundo L., that accredited to Hemsley and to "sensu Matsumura & Hayata" is V. trifolia var. simplicifolia Cham., that ascribed to Sessé & Mociffo is V. mollis H.B.K., that ascribed to Vahl is V. triflora Vahl, and that ascribed to Linnaeus the younger is V. trifolia L. The date for Heyne's synonym is given erroneously as "1824" by Santapau & Wagh (1963).

MacMillan (1962) states that V. altissima is best grown on calcareous soil and is reasonably immune to termite attack. In India its wood is used for building purposes and cabinet work. He records the vernacular names "kadamanakku", "kaddamanakka", "milla", and "sapu-milla". Gupta (1962) states that the species grows up to 4000 feet altitude in the eastern Himalayas and Ghats. Ellis

(1966) records the species from Andhra Pradesh and tells us that it prefers a rocky substratum, flowering in July, and cites a National Herbarium number 14252. Naithani (1966) refers to it as "common", flowering and fruiting in August, and cites a number 21114. Rao & Sastry (1964) report it as "common" in Madras, but Sebastine & Ramamurthy (1966) found only a "few" in that state, citing a number 14693.

Additional citations: INDIA: Bombay: Stocks, Law, & al. s.n. [Malabar, Concan &c.] (W--2497091, W--2497123).

VITEX ALTISSIMA f. SUBGLABRA Thwaites

Additional bibliography: Watt, Dict. Econ. Prod. India 6 (4): 247. 1893; Moldenke, Phytologia 15: 226--227. 1967; Moldenke, Résumé Suppl. 15: 10, 15, 24, & 25. 1967.

VITEX AMBONIENSIS Gürke

Additional bibliography: Watt & Breyer-Brandwijk, Med. & Poison. Pl. S. Afr., ed. 2, 1055 & 1454. 1962; Moldenke, Phytologia 15: 227. 1967; Moldenke, Résumé Suppl. 15: 8. 1967.

The Balsinhas 242, F. A. Mendonca 2705, and Torre 2067, 2277, & 3829, distributed as V. amboniensis, are all V. tangensis Gürke. The last-mentioned of these collections is actually described by Garcia as "intermediate" between the two species.

VITEX BARBATA Planch.

Additional bibliography: Moldenke, Phytologia 15: 228 & 258. 1967; Moldenke, Résumé Suppl. 15: 24. 1967.

VITEX BERAIVIENSIS Vatke

Additional bibliography: Moldenke, Phytologia 15: 228. 1967; Moldenke, Résumé Suppl. 15: 24. 1967.

VITEX BERAIVIENSIS f. PILOSA Moldenke

Additional bibliography: Moldenke, Phytologia 15: 91. 1967; Moldenke, Résumé Suppl. 15: 24. 1967.

VITEX BERAIVIENSIS f. VILLOSA Moldenke

Additional bibliography: Moldenke, Phytologia 15: 91. 1967; Moldenke, Résumé Suppl. 15: 24. 1967.

VITEX BETSILIENSIS Humbert

Additional bibliography: Moldenke, Phytologia 15: 228. 1967.

Additional citations: MADAGASCAR: Decary s.n. [18-2-1938] (W--2494780).

VITEX BOJERI Schau.

Additional bibliography: Moldenke, Phytologia 15: 229 & 242. 1967; Moldenke, Résumé Suppl. 15: 24. 1967.

VITEX CANESCENS Kurz

Additional bibliography: Gamble, Man. Ind. Timb., ed. 1, 296

(1881) and ed. 2, 541. 1902; Moldenke, *Phytologia* 15: 230. 1967.

The species has been found growing in thickets on Hainan Island. The corollas are described as having been "whitish-yellow" on F. C. How 70722.

Additional citations: INDIA: Assam: Chand 3151 (Mi). Khasi States: C. B. Clarke 38117c (W-803395). CHINA: Hupeh: E. H. Wilson 408 [6/07] (W-777035), 408 [10/07] (W-777035). Kwangtung: Peng, Tak, & Kin s.n. [Herb. Canton Chr. Coll. 12882] (W-1248092). Kweichow: Steward, Chiao, & Cheo 936 (W-1659309); Tsiang 6225 (W-1575155). CHINESE COASTAL ISLANDS: Hainan: F. C. How 70722 (W-1675692).

VITEX CAPITATA Vahl

Additional & emended synonymy: Vitex bignonioides H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 200. 1817. Vitex bignonioides Humb. & Bonpl. apud Steud., Nom. Bot., ed. 1, 888. 1821.

Additional & emended bibliography: H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 200 (1817) and ed. quart., 2: 246-247. 1818; Pers., Sp. Pl. 3: 361. 1819; Steud., Nom. Bot., ed. 1, 888. 1821; Barnhart, Bull. Torrey Bot. Club 29: 590. 1902; A. Chev., Cat. Pl. Jard. Bot. Saigon 36. 1919; E. J. Salisb., Ind. Kew. Suppl. 11: 265. 1953; Veillon, Revist. Forest. Venez. 5: 59, 61, & 66. 1962; J. A. Steyerma., Act. Bot. Venez. 1: 254. 1966; Moldenke, *Phytologia* 15: 230. 1967.

Prance, Forero, Pena, & Ramos 4623 is said to have had green calyx and blue corollas — the collectors describe the plant as a treelet, 6 m. tall, called "taruma", growing in islands of forest on savannas.

It should be noted that the H.B.K. reference dates given in the bibliography above have been authenticated by consultation of the work by Barnhart (1902).

Chevalier (1919) reports this species as cultivated in South Vietnam under the vernacular name "binh linh xanh", blooming from June to August, but I have as yet seen no material of it from there. Veillon calls attention to the fact that the leaves of this species are deciduous.

Additional citations: BRAZIL: Roraima: Prance, Forero, Pena, & Ramos 4623 (N, Rf).

VITEX CESTROIDES J. G. Baker

Additional bibliography: Moldenke, *Phytologia* 15: 230. 1967; Moldenke, *Résumé Suppl.* 15: 25. 1967.

VITEX CHRYSOCARPA Planch.

Additional bibliography: A. Chev., *Sudania* 1: 43. 1911; Moldenke, *Phytologia* 15: 231. 1967.

Chevalier (1911) cites his no. 2755 from Senegal in addition to the numbers previously reported.

VITEX CHRYSOMALLUM Steud.

Additional bibliography: Moldenke, *Phytologia* 15: 231. 1967.
Additional citations: MADAGASCAR: Decary 6510 (W-2494779).

VITEX COFASSUS Reinw.

Additional bibliography: Moldenke, *Phytologia* 15: 231-232. 1967; Moldenke, *Résumé Suppl.* 15: 25. 1967.

VITEX COMPRESSA Turcz.

Additional bibliography: Moldenke, *Phytologia* 15: 232 & 313. 1967; Moldenke, *Résumé Suppl.* 15: 4. 1967.

Bernardi found the tree growing at only 100 m. altitude. Steyermark describes it as a tree, 15 m. tall, the leaves subcoriaceous, the veins sulcate above, paler green beneath and there with rugose veins, the fruit green and globose.

Additional citations: VENEZUELA: Bolívar: Bernardi 7400 (N); J. A. Steyermark 86621 (W-2486290), 86722 (W-2486314). Yaracuy: Bernardi 6955 (N).

VITEX CONGOLENSIS DeWild. & Th. Dur.

Additional bibliography: Moldenke, *Phytologia* 15: 232 & 322. 1967.

VITEX COOPERI Standl.

Additional bibliography: Moldenke, *Phytologia* 15: 232. 1967.
Duke reports the fruit of this species green in July.

Additional citations: PANAMA: Darién: J. A. Duke 13572 (Oh).

VITEX CORDATA Aubrév.

This taxon is now regarded as being conspecific with V. simplicifolia Oliv. and the binomial is to be relegated to synonymy there.

VITEX COURSI Moldenke

Additional bibliography: Moldenke, *Phytologia* 15: 240. 1967; Moldenke, *Biol. Abstr.* 48: 10560. 1967.

VITEX CYMOSA Bert.

Additional bibliography: Moldenke, *Phytologia* 15: 240. 1967.

Duke & Bristan found this plant in fruit in April and record the vernacular name, "cuajado", for it in Panama.

Additional citations: PANAMA: Darién: Duke & Bristan 8244 (Oh).

VITEX DIVARICATA Sw.

Additional & emended bibliography: J. F. Gmel. in L., *Syst. Nat.*, ed. 13, pr. 1, 2: 962 (1789) and pr. 2, 2: 962. 1796; Pers., *Sp. Pl.* 3: 360. 1819; Steud., *Nom. Bot.*, ed. 1, 888. 1821; D. R. Harris, *Univ. Calif. Publ. Geogr.* 18: [Pl. Anim. & Man Outer Leeward Isls.] 151. 1965; Steyermark & Agostini, *Act. Bot. Venez.* 1 (2): 13, 14, & 17. 1966; Moldenke, *Phytologia* 15: 241 & 317. 1967; D'Arcy, *Rhodora* 69: 439. 1967.

Additional citations: LEEWARD ISLANDS: Dominica: W. H. Hodge

3847 (Ms--34359).

VITEX DIVERSIFOLIA Kurz

Additional bibliography: Gamble, Man. Ind. Timb., ed. 2, 539. 1902; Moldenke, Phytologia 15: 241. 1967.

VITEX DONIANA Sweet

Additional bibliography: A. Chev., Sudania 1: 4 & 43. 1911; Watt & Breyer-Brandwijk, Med. & Poison. Pl. S. Afr., ed. 2, 1055 & 1454. 1962; Hepper, Bull. Inst. Fond. Afr. Noire 27: 419, 421, & 496. 1965; Camera & Ciferri, Quaderno 39: 455 & 456. 1967; N. H. A. Cole, Bull. Inst. Fond. Afr. Noire 29: 910. 1967; Moldenke, Phytologia 15: 241, 245, 246, 258, 260, & 264. 1967; Anon., Quart. Journ. Crude Drug Res. 7: 1066. 1967.

In Northern Nigeria the crushed leaves of this species, known as "black plum" there, or of the "Guinea peach" (Nauclea latifolia) with sugar or the juice of sugarcane, are added to crushed Randia seed to make a black cosmetic. called "katambiri". The mixture is squeezed through cloth and sold as an inky extract. It makes blue-black patterns on the skin lasting 3 or 4 days. The corolla on Lewalle 2200 is described as having been "blanc à mauve pâle".

Cole (1967) tells us that this is a tree of the forest-savanna mosaics in Sierra Leone, while Hepper (1965) reports it as a typical small tree of the plains in sacred groves, frequent in savannas and on top of the escarpment in Northern Nigeria, but "widespread in the savannas of trop. Africa".

Additional citations: BURUNDI: Lewalle 2200 (Ac, Rf, Z), 2362 (Ac, Rf). PORTUGUESE EAST AFRICA: Manica e Sofala: Garcia 60 (Rf). Mozambique: Barbosa 1763 (Rf). Niassa: F. A. Mendonça 654 (Z).

VITEX DUCKEI Huber

Additional bibliography: Moldenke, Phytologia 15: 242. 1967.

Prance, Pena, Allen, & Ramos 2706 is said to have had blue corollas and the collectors describe the plant as a tree, 10 m. tall, with a trunk 15 cm. in diameter, growing on white sand in high campina country.

Additional citations: BRAZIL: Amazonas: Prance, Pena, Allen, & Ramos 2706 (N, Rf).

VITEX FERRUGINEA Schum. & Thonn.

Additional bibliography: Moldenke, Phytologia 15: 242, 243, & 318. 1967.

VITEX FLAVENS H.B.K., Nov. Gen. & Sp. Pl., ed. folio. 2: 199--200. 1817.

Additional synonymy: Vitex flavens Humb. & Bonpl. apud Steud., Nom. Bot., ed. 1, 888. 1821.

Additional & emended bibliography: H.B.K., Nov. Gen. & Sp. Pl., ed. folio, 2: 199--200 (1817) and ed. quart., 2: 246. 1818; Steud., Nom. Bot., ed. 1, 888. 1821; Barnhart, Bull. Torrey Bot. Club 29:

590. 1902; Moldenke, *Phytologia* 15: 243. 1967.

It should be noted that the H.B.K. reference dates given in the emended bibliography above have been authenticated by consultation of the work by Barnhart (1902).

VITEX FLORIDULA Duchass. & Walp.

Additional bibliography: Moldenke, *Phytologia* 15: 243. 1967.

Duke & Bristan record the vernacular name "cuajado prieto" for this species.

Additional citations: PANAMA: Darién: Duke & Bristan 8258 (Oh).

VITEX GAUMERI Greenm.

Additional bibliography: Moldenke, *Phytologia* 15: 244. 1967; Menninger, *Bull. Fairchild Trop. Gard.* 22 (3): 10. 1967.

The Gossweiler specimen, cited below, was originally identified and distributed as Tabebuia palmeri Rose, but was excluded from that species and genus by an expert on the Bignoniaceae. It was collected, according to its label, from a tree which "originated in Mexico". The specimen consists merely of a very small twig with immature leaves. The pubescence characters of the leaflets, petiolules, and petioles, as well as the characters of the twig itself, agree well with those of V. gaumeri, but the leaflets are all very conspicuously sharp-serrate from above the middle to the apex. I have never observed serrate leaflets before this on Vitex gaumeri. The specimen is, therefore, placed here with a question. If it really represents a Vitex, rather than something bignoniaceous, and it actually came from a plant originating in Mexico, then it can hardly represent anything other than V. gaumeri.

Menninger (1967) lists this species as one of the most beautiful flowering trees in the world, "so smothered with blue flowers that one cannot see the leaves".

Additional citations: MEXICO: Chiapas: F. Miranda 7132 bis (W—2508416), 7973 (W—2508423). CULTIVATED: Angola: Gossweiler 13948 (B).

VITEX GIGANTEA H.B.K., *Nov. Gen. & Sp. Pl.*, ed. folio, 2: 199. 1817.

Additional synonymy: Vitex gigantea Humb. & Bonpl. apud Steud., *Nom. Bot.*, ed. 1, 888. 1821.

Additional & emended bibliography: H.B.K., *Nov. Gen. & Sp. Pl.*, ed. folio, 2: 199 (1817) and ed. quart., 2: 245—246. 1818; Steud., *Nom. Bot.*, ed. 1, 888. 1821; Barnhart, *Bull. Torrey Bot. Club* 29: 590. 1902; Moldenke, *Phytologia* 15: 244. 1967.

It should be noted that the H.B.K. reference dates given above have been verified by consultation of the work by Barnhart (1902).

VITEX GLABRATA R. Br.

Emended synonymy: Vitex leucoxydon Schau, apud Watt, *Dict. Econ. Prod. India* 6 (4): 247, in syn. 1893 [not V. leucoxydon Blanco, 1895, nor L., 1829, nor L.f., 1781, nor Naves, 1918, nor Roth, 1956, nor Roxb., 1814, nor Schau., 1893, nor Span., 1856, nor Wall., 1847, nor

Willd., 1832].

Additional & emended bibliography: Steud., Nom. Bot., ed. 1, 888. 1821; Roxb., Fl. Ind., ed. 2 [Carey], 3: 74. 1832; Watt, Econ. Prod. India 5: 294 (1883), 6: 191 (1883), and 7: 255. 1883; Watt, Dict. Econ. Prod. India 6 (4): 247 & 248. 1893; Koord., Meded. Lands Plant-tuin. Buitenz. 19: 560 & 645. 1898; Gamble, Man. Ind. Timb., ed. 2, 542. 1902; Prain, Bengal Fl., ed. 1, 2: 832 & 833 (1903) and ed. 2, 2: 621, 622, & 1012. 1963; Rao & Rabha, Bull. Bot. Surv. India 8: 301. 1966; J. S. Beard, Journ. Ecol. 55: 277. 1967; Moldenke, Phytologia 15: 244--245 & 253. 1967; Moldenke, Biol. Abstr. 49: 1325. 1968.

Prain (1963) records the vernacular name "ashval" for this plant. Watt (1893) includes V. bombacifolia Wall. and V. pallida Wall. in the synonymy here. Prain (1963) cites the first of the Watt references given in the bibliography above as "E. D. 5: 160", but this is a paragraph reference, not a page reference! Beard (1967) tells us that V. glabrata is one of the members of the broadleaf tree level in Australia with Eucalyptus and Terminalia, but he refers here to V. lucens T. Kirk

Material has been misidentified and distributed in herbaria under the names V. leucoxydon L. and V. leucoxydon Roxb.

Panigrahi, Chowdhury, Raju, & Deka (1964) record V. glabrata from Orissa, where they say it is occasional and flowers in June.

The J. L. Lister 397, distributed as V. glabrata, is probably var. bombacifolia (Wall.) Moldenke.

It should be mentioned here that V. leucoxydon L. f. is a valid species, with the V. leucoxydon accredited to Linnaeus the elder and to Wallich as synonyms, that accredited to Roth and to Roxburgh is V. glabrata var. bombacifolia (Wall.) Moldenke, that accredited to Blanco is V. negundo L., and that accredited to Spanoghe is V. parviflora A. L. Juss.

Additional citations: PAKISTAN: East Bengal: C. B. Clarke 20089f (W--802739), 20089z (W--802740). INDIA: West Bengal: Helfer 17 (W--1668961). BURMA: Prazer 209 (W--369588). THAILAND: Mrs. D. J. Collins 1247 (W--1401055).

VITEX GLABRATA var. BOMBACIFOLIA (Wall.) Moldenke

Emended synonymy: Vitex leucoxydon Roxb., Hort. Beng. 46, hyponym. 1814 [not V. leucoxydon Blanco, 1895, nor L., 1829, nor L.f., 1781, nor Naves, 1918, nor Schau., 1893, nor Span., 1856, nor Wall., 1847, nor Willd., 1832].

Additional bibliography: Moldenke, Phytologia 15: 245. 1967.

Watt (1893) reduces V. bombacifolia Wall. and V. pallida Wall. to synonymy under typical V. glabrata R. Br. The V. leucoxydon accredited to Blanco and to Naves is a synonym of V. negundo L., that accredited to Linnaeus the elder, to Wallich, and to Willdenow is V. leucoxydon L. f., that ascribed to Schauer is V. glabrata R. Br., and that ascribed to Spanoghe is V. parviflora A. L. Juss.

Lister describes this plant as a "large timber tree".

Additional citations: PAKISTAN: East Bengal: J. L. Lister 397 (W—2497335).

VITEX GRANDIFOLIA Gürke

Additional bibliography: Cave, Ind. Pl. Chromosome Numb. 1: 54. 1958; Moldenke, Phytologia 15: 245—246 & 257. 1967.

Cave (1958) reports the diploid chromosome number for this species as 32.

VITEX GUERKEANA Hiern.

Additional bibliography: Moldenke, Phytologia 15: 247 & 318. 1967.

VITEX HARVEYANA H. H. W. Pearson

Additional bibliography: R. H. Compton, Journ. S. Afr. Bot. Suppl. 6: 66 & 156. 1966; Moldenke, Phytologia 15: 247 & 321. 1967.

Compton (1966) describes this species as "a handsome plant", growing in riverside bushveld and along streams in Swaziland. The Codd 5514 previously cited as deposited in my personal herbarium is now in that of the Texas Research Foundation at Renner, Texas.

Additional citations: PORTUGUESE EAST AFRICA: Manica e Sofala: Barbosa 750 (Z).

VITEX HEMSLEYI Briq.

Additional bibliography: Moldenke, Phytologia 15: 248. 1967.

Additional citations: MEXICO: Michoacán: J. Espinosa 835 (Mi).

VITEX HEPTAPHYLLA A. L. Juss.

Additional bibliography: Pers., Sp. Pl. 3: 360. 1819; Steud., Nom. Bot., ed. 1, 888. 1821; Moldenke, Phytologia 15: 248. 1967.

VITEX KENIENSIS Turrill

Additional bibliography: Ivory, East Afr. Agr. Forest Journ. 32: 393—397. 1967; Moldenke, Phytologia 15: 251. 1967; Anon., Biol. Abstr. 49 (7): S.181. 1968; Ivory, Biol. Abstr. 49: 3307. 1968.

Ivory (1967) describes lesions which are produced on the leaves of this plant by the fungi Phoma viticis and Phyllosticta ragatensis. Seedling deaths caused by the former of these may be controlled partially by fungicides. Chronic leaf-spotting due to the latter is reduced under warm dry growth conditions. The transfer of Vitex seedlings, for instance, from Ragati to Little Sagave avoids disease hazards and improves the rate of growth.

VITEX KUYLENII Standl.

Additional bibliography: Moldenke, Phytologia 15: 251. 1967.

Recent collectors describe this plant as a tree, 8—12 m. tall, growing on "cohune" ridges, and with green fruits in May. The corollas were "violet-blue" on Jones, Proctor, & Facey 3031.